Gambling participation and risk after COVID-19: analysis of a population representative longitudinal panel of Australians

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Abstract

The impact of the COVID-19 pandemic on gambling participation, and levels of gambling harm across populations during the pandemic is now addressed in a well-established body of empirical literature. This literature highlights reduction in gambling frequency and expenditure overall, but also shows clear predictors of increased gambling during the global lockdowns, including male gender, young age, higher problem gambling severity, and a history of mental health concerns. There are fewer population-based cohort studies, however, examining the longer-term implications of COVID-19 regarding both the reduction in overall gambling, and the increase in some vulnerable groups. The present paper focuses on these patterns in recent data from 2023, that was collected more than 12 months since the last major lockdowns and related social restrictions in Australia. This data reports on findings out of the ANU CSRM COVID-19 Impact Monitoring Survey Series, a longitudinal population representative survey of Australian adults, taken from the Life in Australia Panel. It includes gambling participation and problem gambling severity data from 2019 (pre COVID-19), 2020, 2021 (during COVID-19) and 2023 (post COVID-19) showing the patterns of participation and gambling severity over time and across a range of gambling activities after COVID-19. These findings are discussed in the context of gambling harm prevention, and they can be used to inform how public health interventions and policy can adjust to the long-term impacts of COVID-19 on gambling in the post-pandemic era.

Keywords

Gambling risk; COVID-19; longitudinal; population representative; Problem Gambling Severity Index

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1 Introduction and overview

There is now a well-established body of literature around the early impacts of the COVID-19 pandemic on gambling behaviours. Hodgins et al. (2021) reviewed 17 empirical studies where data was collected during the first lockdown period from March to May 2020. All studies showed an overall reduction in gambling frequency and expenditure. Despite this general population trend, the review identified some clear predictors of increased gambling during the first lockdown (at least in relative terms), including male gender, young age, higher problem gambling severity, and a history of mental health concerns. Another review covering a slightly longer time period from the start of the pandemic provided converging evidence on a significant increase in gambling among high-risk gamblers (Brodeur et al., 2021). Overall, these associations were also evident in the later studies where data was collected in 2021, particularly around risk factors of problem gambling severity and younger age (Quinn et al., 2022).

A majority of studies assessing the impact of COVID-19 on gambling are from the first wave of the pandemic. Given that many countries only lifted their pandemic restrictions in late 2022, data beyond this can ascertain the longer-term impacts of the pandemic on gambling. The longer-term implications of both the reduction in overall gambling, and the increase in some vulnerable groups are unclear, and this information is important to understand where public health interventions and policy is needed to adjust to these changes. In addition, hardly any studies have examined participation in different gambling activities during the later stages or following the pandemic.

In Australia, where the current data was collected there were particularly strict social restriction measures in place for extended periods of time, that resulted in venue closures particularly restricting high yield gambling activities such as casino and electronic gaming machine (EGM) gambling throughout 2020, 2021, and to some extent in early 2022 (Stobart & Duckett, 2022). In addition, the cancellation of sports, and racing events reduced the amount of sports betting opportunities available for the punters. Limited evidence shows that gambling forms that were available online were likely to increase in participation, however, there is very little information on the impact of the pandemic across different gambling activities.

Prospective evidence covering the impact of the entire pandemic on gambling and beyond is needed to address how any reported changes in gambling behaviour are moderated or exacerbated as pandemic-related restrictions lift. Using Australian population-based longitudinal panel data, the current paper addresses the following research questiuons:

1. What proportion of Australians gambled across gambling risk categories 2019, 2020, 2021, and 2023

2. What were the patterns in transitions between gambling risk categories from 2019 to 2021, and from 2021 to 2023

3. What proportion of Australians participated in EGM play, race betting, lottery games, sports betting and any form of gambling in 2019, 2020, 2021 and 2023

4. What proportion of at-risk gamblers in Australia participated in EGM play, race betting, lottery games, sports betting and any form of gambling in 2019, 2020, 2021 and 2023

2   Data and methods

Life in Australia (LinA)[1] is a longitudinal, probability-based panel infrastructure where a broadly representative sample of Australian adults are invited to participate in monthly surveys either online or through Computer Assisted Telephone Interviewing (CATI).

ANUPoll is an approximately quarterly survey of Australian public opinion, placing public opinion in a broad policy context. Since October 2017 the ANUpoll series of surveys has been collected through LinA, with seven waves of data collection between October 2017 and January 2020. Between April 2020 and January 2023, the ANUpoll series had a particular focus on COVID-19 outcomes, with 14 waves of data collection as part of the ANU Centre for Social Research and Methods, COVID-19 Impact Monitoring series.

In this paper we use data from four waves of ANUpoll collected in April 2019 (n = 2,054), November 2020 (n = 3,029), October 2021 (n = 3,474), and January 2023 (n = 3,370). Each wave includes information on the gambling behaviour of Australians aged 18 years and over, with a subset of each wave able to be linked to previous or subsequent waves. Data from all waves used in this paper are available in unit-record format through the Australian Data Archive. Table 1 gives sample characteristics for each of the waves used in the analysis.

Table 1   Proportion of sample with particular characteristics

Sample characteristic	Apr 2019	Nov 2020	Oct 2021	Jan 2023
Female	0.531	0.560	0.558	0.559
Aged 18 to 24	0.043	0.027	0.037	0.041
Aged 25 to 34	0.118	0.114	0.114	0.115
Aged 35 to 44	0.146	0.155	0.145	0.163
Aged 45 to 54	0.180	0.162	0.163	0.163
Aged 55 to 64	0.196	0.205	0.201	0.199
Aged 65 to 74	0.211	0.214	0.230	0.216
Aged 75 plus	0.104	0.123	0.111	0.103
Lived in a 'non-COVID' jurisdiction	0.438	0.430	0.420	0.394

Note: Non-Covid jurisdictions are those that were minimally impacted by the lockdowns that occurred in mid-late 2021 in Australia, namely: Queensland, South Australia, Western Australia, Tasmania, and the Northern Territory

Data in the paper is weighted to population benchmarks. For LinA[1], the approach for deriving weights generally consists of the following steps:

1.   Compute a base weight for each respondent as the product of two weights:

    a. Their enrolment weight, accounting for the initial chances of selection and subsequent post-stratification to key demographic benchmarks

    b. Their response propensity weight, estimated from enrolment information available for both respondents and non-respondents to the present wave.

2.   Adjust the base weights so that they satisfy the latest population benchmarks for several demographic characteristics.

2.1   Measures

Problem gambling risk was measured by the 9-item Problem Gambling Severity Index (PGSI; Ferris & Wynne 2001). The PGSI asks about the negative consequences and behavioural symptoms of gambling over the previous 12 months, e.g., "*Have you bet more than you could really afford to lose?*" with response options ranging from 0=never to 4=often.

The risk thresholds used in the current study were consistent with Currie, Casey & Hodgins (2010):

    (1) non-gamblers (not gambled in the past 12 months);
    (2) non-problem (PGSI score 0, including non-gamblers);
    (3) low risk (PGSI score 1-2);
    (4) moderate risk (PGSI score 3-7); and
    (5) problem gambling (PGSI score 8+).

In addition to the five PGSI risk groups, some of the analysis also use the categorisations 'risky' (PGSI 1+) gambling, and separately to 'high risk gambling' (PGSI 3+) consistent with other studies (Afifi et al. 2010; Crockford et al. 2008).[2]

Participants were also asked which gambling activities they participated in over the past 12 months for money: (1) poker machines or gaming machines at a venue; (2) horse or greyhound races; (3) instant scratch tickets; (4) a lottery game (Tattslotto or Powerball); (5) Keno; (6) table games such as blackjack, poker, or roulette at a casino; (7) bingo or housie; (9) sporting or special event like football, cricket, tennis, a TV show, or election; (10) informal games like cards, mah-jong, or snooker for money; (11) raffle tickets.

2.2   Analysis

We present proportional data across cross-sections in 2019, 2020, 2021, and 2023 by gambling risk category and overall, and for the highest yielding gambling activities: poker machines, races and sports betting, and for lottery by way of comparison to a low-yield gambling activity. We also present proportional data for gambling risk transitions from 2019 to 2021 and from 2021 to 2023 to examine which gambling risk categories the transitions took place in. To generate our gambling risk transition figures, we used SankeyMATIC (https://github.com/nowthis/sankeymatic) that utilizes the open source D3.js JavaScript library (https://d3js.org).

3   Results

In this section, we report patterns of gambling participation across Australian population, overall, and in relation to specific gambling activities, including;

(1) Distribution of Australians who did not gamble, gambled with no negative consequences (at risk, PGSI 1+), and those who gambled at-risk levels (PGSI1+)
(2) Distribution of Australians who transitioned between gambling risk groups between 2019, 2021 and 2023.
(3) Distribution of Australian population who participated in EGM play, race betting, lottery games, sports betting in 2019, 2020, 2021, and 2023
(4) Distribution of at-risk gamblers (PGSI 1+) who participated in EGM play, race betting, lottery games, sports betting in 2019, 2020, 2021, and 2023

Figure 1 shows the distribution of three groups based on their gambling risk status: non-gamblers, non-problem gamblers and at-risk gamblers (PGSI 1+) in 2019, 2020, 2021 and 2023. The proportion of gamblers overall is largest in 2019 (65.7%), and the smallest in 2021 (53.5%). Gambling participation and at-risk gambling increased in 2023 compared to 2020 and 2021, but it was lower than in 2019.

Figure 1 Cross-sectional proportions of Australians who did not gamble, gambled without negative consequences, and those who gambled at risky levels (PGSI 1+) in 2019, 2020, 2021 and 2023.
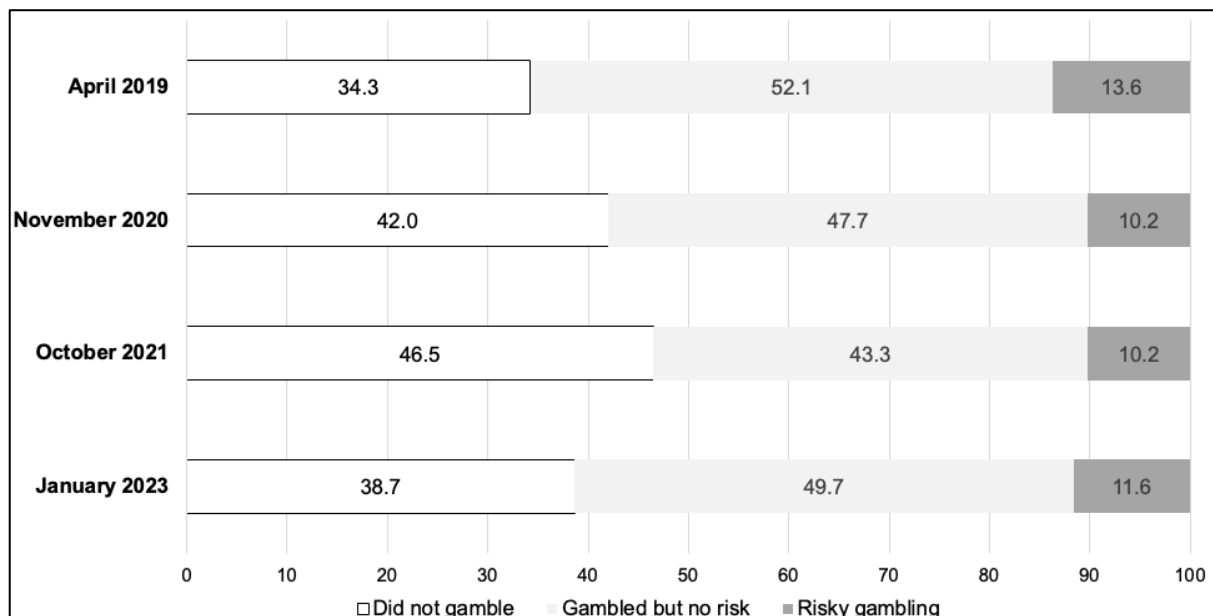
Figure 2 shows the longitudinal transitions from 2019 to 2021, and from 2021 to 2023 between four gambling risk groups: non-gamblers, non-problem gamblers, low risk gamblers (PGSI 1-2) and high risk gamblers (PGSI 3+). Similar to Figure 1, it shows a strong trend towards non-participation, particularly from non-problem and low risk gambling groups between 2019 and 2021, and increase in participation rates from 2021 to 2023. Individuals in the high risk gambling groups tend to remain in the high risk gambling groups during the pandemic, and after the pandemic there is more movement into and out of the high risk group.

Figure 2 Proportions (%) of Australians between 2019 and 2021, and 2021 to 2023 transitioning between non-gamblers (NG), non-problem (NPG), low risk (LR) and high risk (HR) (percentages do not match Graph 1 due to missing data).
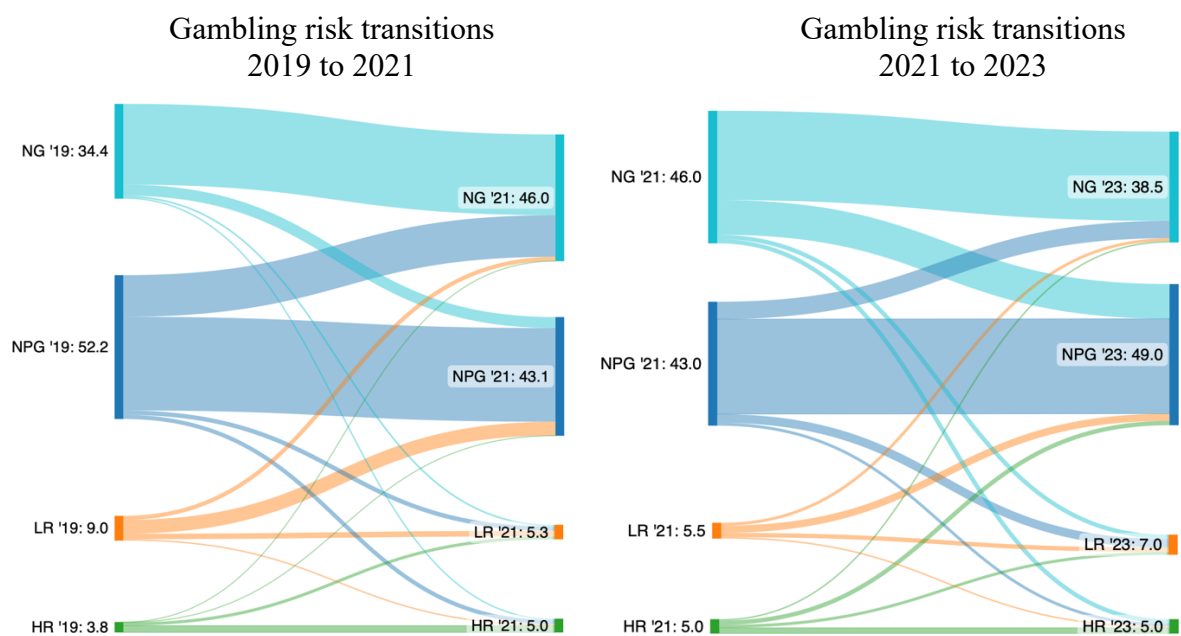
Figure 3 shows participation in select gambling activities across the four timepoints in Australian population. Similar to overall gambling participation, the individual gambling activities significantly decreased at the start of the pandemic, although betting on races only decreased in the second year of the pandemic and sports betting slightly increased in the second year of the pandemic in the overall population.

Figure 3 Participation rates in EGM play, race betting, lottery games, sports betting and any form of gambling in 2019, 2020, 2021 and 2023 in the Australian population

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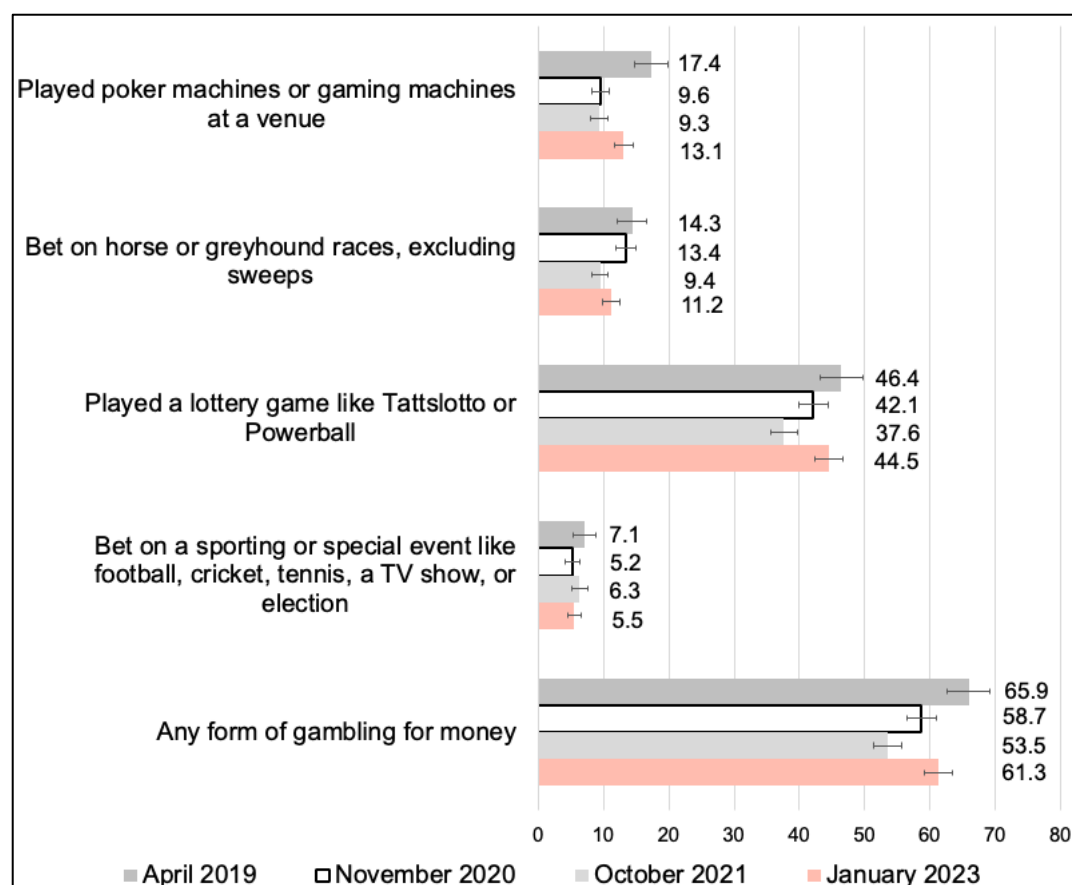
Figure 4 shows the same participation pattern for at-risk gamblers (PGSI 1+) showing disproportionally high participation rates in sports betting and lower participation rates in lottery games across the timepoints, overall. Figure 4 shows different pattern to the general population with a decrease in EGM and sports betting participation during the pandemic but an increase in race betting and lottery.

Figure 4 Participation rates in gambling activities of those who reported risky gambling across 2019, 2021, 2022 and 2023.
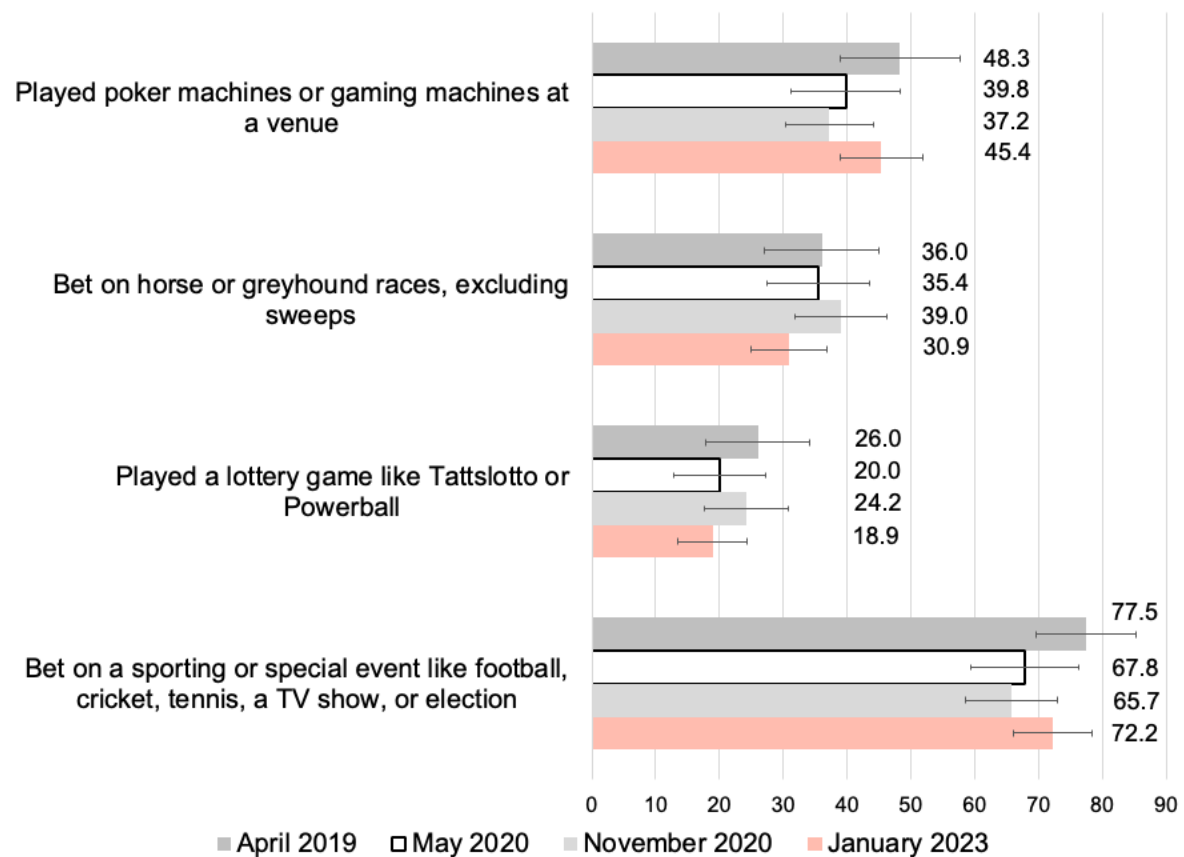
4   Discussion

The current study investigated the impact of COVID-19 on gambling participation and risky gambling before, during and after COVID-19-related social restrictions. The main findings show a reduction in overall gambling levels during the pandemic, with a slight increase of gambling levels by January 2023. However, levels of high-risk gambling remained relatively stable across all timepoints in line with research on the first year of the pandemic (Black et al., 2022). Similar to other pre-COVID19 Australian population-based studies on gambling participation and risk, our data also shows that a vast majority of Australians never gamble at risky levels (Armstrong & Carroll, 2017; Billi et al., 2014; Gambling Commission, 2022; Merkouris et al., 2020).

The current findings point to a considerable proportion of low risk and non-problem gamblers who ceased gambling during the pandemic. In contrast, once lockdown restrictions began to ease the gambling risk tended to increase across all risk categories including non-gamblers, whereas this pattern of transition was rare pre-pandemic (i.e., Merkouris et al., 2020). Notably, at each timepoint before, during and after COVID19, low risk gamblers were the most unstable gambling group, whereas high risk group tended to remain their level of gambling risk with little movement across timepoints. These findings are aligned with other pre-pandemic research that show considerable movement in and out of low-risk gambling (i.e., Billi et al., 2015; ACIL Allen Consulting, 2015; Williams et al., 2015). These findings also further support previous evidence showing an increase and perseverance of higher risk gambling during the pandemic (Black et al., 2020; Hodgins et al., 2021; Quinn et al., 2022).

While overall gambling participation rates decreased during lockdown periods (Brodeur et al., 2021; Hodgins & Stevens, 2021; Quinn et al., 2022), the current data shows that by 2023 participation had nearly returned to pre-pandemic levels. Contrary to this overall pattern, participation rates for specific activities, such as betting for sports or special events, tended to increase in the latter half of the pandemic (i.e., 2021), and then to decrease by 2023. Participation rates for at-risk gamblers show similar patterns. Betting money on both sporting/special events and poker/gaming machines decreased during the pandemic, followed by an increase in participation in these activities by 2023. Furthermore, betting money on horse/greyhound races and lottery games for at-risk gamblers were shown to decrease immediately following the global lock downs at the start of the pandemic, and then increase in the latter half of 2020.

Our work extends previous longitudinal evidence that tracked the decline and return of gambling participation from April 2019 to November 2020, the period when COVID-19 restrictions begun to be eased (Biddle, 2020), to now suggest a more complete picture of return to "the new normal" by 2023. We replicated previous evidence that outlined a reduction in the overall frequency and expenditure of gambling activities during the pandemic (i.e., Hodgins & Stevens, 2021), and extend this to show a gradual increase in gambling levels and activities by 2023. Importantly, broader literature suggests that individuals whose gambling increased during the pandemic had a higher likelihood of gambling severity, psychological distress and increased levels of alcohol consumption (Håkansson, 2020). In addition, previous evidence has also shown that being of male gender and younger age (i.e., Hodgins et al., 2021), as well as reporting greater levels of loneliness (i.e., Sirola et al., 2023), were associated with an increased risk of problem gambling.

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Building upon these findings, future investigation of the current data and other similar population representative datasets can be used to identify potential sociodemographic (i.e., male gender, younger age) and health-related profiles (i.e., substance use, loneliness) of individuals who returned to gambling after the pandemic, who abstained and who stayed the same. It is inevitable that gambling participation and level of harms have permanently shifted following COVID19, and information such as this will guide the required shift in gambling policy as well as public health strategies to tackle gambling harm in the Australian communities.

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Endnotes

1   https://srcentre.com.au/our-research/life-in-australia-study
2   Additional support for lowering the PGSI cut point comes from a recent study which shows that while the PGSI 8+ cut point has a specificity of 99 % (almost no false positives), it only identifies 49 % of the problem gamblers based on clinical ratings and therefore generated many false negatives (Williams and Volberg 2014).

Endnotes

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